# 4-2 Milestone Three - Enhancement Two: Algorithms and Data Structure

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I have selected an artifact for my second enhancement in Data Structures and Algorithms of my final project which is the Binary Search Tree. This artifact was made within the bachelor’s degree major of Computer Science which was during CS 260 Data Structures and Algorithms. The purpose of my artifact is to articulate and evaluate the ideal use of a data structure like the Binary Search Tree has along with algorithmic logic to be used in a software project. There are different data structures that have used in each native compiled/interpret languages where I used C++ in my artifact to demonstrate a better efficient way to manipulate data and store data in each database management system. The algorithms built in a data structure like Binary Search Tree has an insert, lookup, update, and remove operations in which I would implement a csv file from a database into the software project to manipulate all datasets given. Although, it lacks data sorting methodology or an algorithm in which a dataset given can be chosen by a user to be able to sort data within Binary Search Tree data structure.

Therefore, my enhancement with my existing artifact was about creating a sorting algorithm that can help the data structure be flexible and to give user’s expected outcomes. Although, I did find that it’s less productive to modify a current method or algorithm within the Binary Search Tree when we run our data into the structure. As I went on inserting new data into an array to test the data structure, I realize that I needed to open on user’s choices to input like the bid id that will be loaded regards to that attribute or other attributes are used in a class. In doing so, I also modified the insert method or algorithm that was made with if and else statements to decide what is going to be implemented by each bid that is added. I planned my enhancement differently where I think that the logical algorithm that I thought of implementing was not going to end up as what I started to create with the Binary Search Tree data structure. Overall, I was still able to be successful with all my proposed enhancement from the code review and still realize better insights of implementing new methods within an existing data structure.

As I was in the progress of enhancing this artifact, I was able to stop and think if it was the best to create new algorithmic solutions that may be an advantage for a user to take from this data structure and apply it within a new dataset. The awesome and importance of a data structure like the Binary Search Tree is the complex and efficiency that may cultivate in large datasets given to easily manipulate and provide instance results out to the console. Some challenges were that I had to setup my IDE environment originally, I had used Apporto Virtual desktop to that had integrated Visual Studios IDE. Another challenge was the update of an IDE that must be re-certified from time to time to keep up with the latest SDK version and be able to continue to work efficiently without any delay in the process. Life lesson has been learned hopefully with this enhancement where I thoroughly gone into thinking that setting up an IDE was not a problem where all my courses taken in the bachelor’s degree in Computer Science were done in a Apporto Virtual Desktop which was already made for us to just learn the concept of the subject.